Illinois Native Plant Society

# The Harbinger

Newsletter *of the* Illinois Native Plant Society

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*"...dedicated to the study, appreciation, and conservation of the native flora and natural communities of Illinois."*

*Thalictrum thalictroides* (Rue Anemone, Ranunculaceae) observed in central Illinois.
Photo by Brian Charles.

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## Message from the President

Happy Spring, INPS members!

Registration is open for the Annual Gathering, June 20-22 in Southern Illinois! Find details and registration on our website, illinoisplants.org. I hope to see you there!

The state board held a retreat recently to set priorities for our work this year. We want to highlight that INPS members are members of the statewide organization, not just a chapter. You can attend events hosted by any chapter, including those on Zoom or in person. We are starting to send out more event announcements and emails from the statewide organization to remind everyone of things going on around the state. In addition, we have leadership roles available for eager volunteers to fill! The Northeast chapter is looking to fill several positions on the chapter board.

Congratulations to this year's grant awardees. INPS is funding another round of excellent projects through our grant program.

There are field trips coming up with the Forest Glen chapter, the NE chapter, the Quad Cities chapter, and the Central Chapter's signature plant sale in May. Please enjoy the beginning of the growing season!

Happy botanizing,

Emily Dangremond

## Native Plant Sales

It's the season for plant sales! Check our website (illinoisplants.org/native-plant-sales/) under Resources > Native Plant Sales to see the listing of sales added so far. Is there one in your area? You can add more sales by entering them using the form linked at the bottom of the page.

# Message from the Editor

In this issue, we are pleased to introduce another member of the Harbinger editing team, Ingrid Felsl. Ingrid is a Biologist with Western EcoSystems Technology and based in Chicago, Illinois. She has been an INPS member since 2019 and has previously served as a board member. Additionally, she held several positions for the Plants of Concern Program at the Chicago Botanic Garden. Brian, Katie, and I look forward to her assistance and expertise.

Personally, I am elated at the return of spring and the beginning of another growing season of rare plant monitoring. But before the leaves return to the trees, I've been visiting some state champion trees in southern Illinois. Here I am with the state champion White Oak (*Quercus alba*) in Jackson County. You can find a list of the state champion trees and their locations at this link. (https://univofillinois.maps.arcgis.com/apps/Shortlist/index.html?appid=090997c75b2e4ca39dd7d35db4328962)

Submissions to the newsletter are always welcome!
Please contact editors:
Chris Benda (botanizer@gmail.com), Brian Charles (brianmc4@illinois.edu), or Ingrid Felsl (ingridfelsl@gmail.com). Deadlines are March 1, June 1, September 1, and December 1 for the spring, summer, fall, and winter issues respectively.

# INPS Chapters

**CENTRAL CHAPTER**
**Springfield**
Trish Quintenz (President)
trishquintenz@gmail.com

**FOREST GLEN CHAPTER**
**Champaign/Urbana, Danville**
Paul Marcum (President)
marcum@illinois.edu

**GRAND PRAIRIE CHAPTER**
**Bloomington/Normal**
Joe Armstrong (President)
jearmstr@ilstu.edu

**KANKAKEE TORRENT CHAPTER**
**Bourbonnais**
Floyd Catchpole (President)
fcatchpole@comcast.net

**NORTHEAST CHAPTER**
**Chicago**
vacant (President)
northeast.inps@gmail.com

**QUAD CITIES CHAPTER**
**Rock Island**
Samantha Chavez (President)
sjchavez0@gmail.com

**SOUTHERN CHAPTER**
**Carbondale**
Nick Seaton (President)
southernillinoisplants@gmail.com

## Save the date!

Join the Illinois Native Plant Society for our **Annual Gathering in southern Illinois from June 20-22.** The Southern Chapter is hosting this year with lots of interesting hikes and seminars. The event will be held at SIU's scenic Touch of Nature with hikes throughout the region. More information about field trips, presentations, meals, and lodging options can be found on the Annual Gathering webpage: www.illinoisplants.org/the-annual-gathering/

## Annual Central Chapter Native Plant Sale

Preparations for the Central Chapter's annual plant sale are in full swing! The big day is **Saturday, May 10 from 9am–12pm at the Illinois State Fairgrounds!** You can find more information including a list of available species and mixes on the INPS website: illinoisplants.org/central-chapter-plant-sale/

## 2025 INPS Research and Survey Grants Announced

The INPS Grant Committee is pleased to announce the 2025 roster of grant recipients—five Research Grants and one Survey Grant have been awarded. The grant applications were given a rigorous evaluation by professional review panels of botanists and ecologists and were judged to have met the goals of the Society and the high-standard requirements of the grant criteria. Congratulations to these winners!

**Daniel Pohl, Illinois Natural History Survey, IDNR Forestry (Independent Researcher)**
2025 State-wide Survey for Rock Elm (*Ulmus thomasii*), September Elm (*U. serotina*) and New Forest Pest, Elm ZigZag Sawfly (*Aproceros leucopoda*)

In 2025, I will perform a state-wide survey for the IL-Endangered Rock elm, *Ulmus thomasii*. In 2024, this species was one of 23 identified by ESTAC (Endangered Species Technical Advisory Committee) as a priority (i.e. in need of more/updated survey data). The survey will involve visiting at least 18 locations in 10 counties in IL, including the 7 "Element Occurrence (EO)" locations currently recorded by IDNR. Eleven potential "new" Rock elm locations have already been identified via a search of online herbarium specimens, literature review and conversations with colleagues; these will also be searched in 2025 (see attachment) and IDNR records will be updated, if found. Additionally, based on herbarium specimen collections of wild trees from three counties, some collected as recently as 1999, a search for the September elm (*Ulmus serotina*) will be conducted in 2025 in Hardin and Jackson Counties. Planted specimens in 2 counties (DuPage and Cook) will also be visited. Although historical distribution maps and the herbarium specimens suggest this tree was indigenous to Southern IL, it is not included in the IL Flora. If found it would represent an addition to our state Flora and would be a good candidate for Endangered status. Concurrently, I will conduct a survey for the emerging, introduced forest pest, Elm ZigZag Sawfly (*Aproceros leucopoda*). This elm defoliator native to East Asia has been spreading rapidly in North America; it was first documented in Canada in 2020 and was reported in Wisconsin and Illinois for the first time in 2024.

**K.C. Carter, Illinois Natural History Survey (Independent Researcher)**
Using Pollen to Identify Nutritional Value of Bumblebee-plant Interactions within Northern Illinois

In response to urgent declines in pollinator populations, this proposed study aims to investigate dietary and habitat factors contributing to bumblebee declines in Illinois. The decline in bumblebee abundance, diversity, and distribution in Illinois is likely due to a combination of factors, the most prominent being the reduction of

both the quantity and quality of semi-natural habitats. Habitat homogenization, fragmentation, and invasive species encroachment pose unique challenges for bumblebee species that rely on specific floral resources throughout colony development, yet relatively few studies have analyzed how habitat quality affects bumblebee community composition and diet. The goal of our proposed project is to use network theory (i.e., food webs) and macro-nutritional analyses to determine the structure and function of bumblebee-plant networks across degraded, restored, and remnant landscapes within transportation corridors in northern Illinois. Comprehensive bumblebee-plant networks will be constructed using interactions detected from metabar coding bumblebee corbicular pollen. Additionally, the macro-nutritional analyses will be used to identify the nutritional quality of pollen resources available within these landscapes. The purpose of this research is to determine if reductions in semi-natural habitat decreases essential forage and nutrition for bumblebees, thus limiting their ability to establish in low-quality habitats. Furthermore, a comprehensive foraging record will not only fill knowledge gaps about habitat requirements particularly in spring during colony development and fall for gynes preparing for over-wintering, but also for imperiled species like Rusty-patched, American, Half-black, and Southern Plains Bumblebees, known to occur in northern Illinois.

**Grant Fessler, Plants of Concern, Chicago Botanic Garden (Independent Researcher)**

Vascular Flora and Composition of Two Loess Hill Prairies in Rock Island County, Illinois

Loess hill prairie is a Globally Imperiled (G2) natural community type that is known only from Illinois. These communities occur on thick loess deposits, typically on steep south or west-facing upper slopes along streams and rivers. Historically, loess hill prairies were common along the bluffs of the Mississippi and Illinois Rivers in Illinois, but now they have become scarce due to forest encroachment. NatureServe estimates that fewer than 100 occurrences exist rangewide, with fewer than 70 documented occurrences in Illinois. This study aims to inventory and analyze the vascular flora of two high quality loess hill prairie sites in Rock Island County, IL that have been maintained by brush removal and prescribed fire: the Josua Lindahl Hill Prairies Nature Preserve and Indian Bluff Hill Prairie. This study will be conducted in coordination with Augustana College and Rock Island County Forest Preserve district, the respective site owners. Inventory and quantitative vegetation data will be collected in order to calculate species composition, floristic quality metrics, and Sorensen Index of Similarity. Data from this study will 1) allow for an assessment of how vegetation at both sites has changed since original Illinois Natural Areas Inventory monitoring, 2) allow for floristic comparison between loess hill prairie sites, 3) help inform ecological management at both sites, and 4) increase our understanding of this imperiled natural community type in Illinois.

**Kathleen Garness (Citizen Scientist and Steward) and Dr. Gerould Wilhelm, Conservation Research Institute**

Hosah Prairie: Creating a Legacy of Knowledge

Hosah Prairie is an extremely biodiverse 22.7 acre grade A and B sand prairie in the Chiwaukee-Waukegan Beach Ridge Plain, which includes dune, swale, and panne plant communities. This beach-ridge plain system has been recognized by the Ramsar Convention on Wetlands, as one of only 41 in the United States. It is demonstrably, for its size, one of the most floristically rich sites in northeastern Illinois with more Element Occurrences per unit area than anywhere else in the Beach Ridge Plain. It was discovered, along with many others, in the late 1970s, during Illinois' attempt to identify the natural area remnants of the state. Hosah Prairie was the subject of a comprehensive survey of vascular plants put together by Dr. Wayne Schennum in 1989 to support a grassroots effort to save the site from development. Significant floristic research as well as stewardship activities have been ongoing since then to promote and conserve Hosah Prairie. Schennum's sight records have specific enough information for us to evaluate its floristic quality at the time through the technique of FQA analysis. Since then, there has been an accumulating body of information that can show the progression of our understanding of Hosah's quality, up to the present day. Our study will amplify Schennum's sight records, create a detailed and accurate list of associates to the vouchered plants, add to our understanding of these rare and fragile plant communities, and assist in our educational outreach and stewardship of this important site.

**Emily Pointdexter (Independent Researcher) and Dr. Andrea Weeks, both George Mason University**

Conservation Genetic Analysis of Ozark Milkvetch (*Astragalus distortus*; Fabaceae)

Ozark Milkvetch (Astragalus distortus) is a small, herbaceous perennial legume that is native to the central United States and Maryland, Virginia, and West Virginia. Across the central U.S. the species is found in sunny glades, grasslands, and prairies, whereas in the mid-Atlantic states it grows exclusively on shale barrens and is Imperiled (Maryland, West Virginia) and Critically Imperiled (Virginia). This project uses comparative genetic methods to resolve questions about the species' taxonomy, genetic diversity, and evolutionary history. Presently, two taxonomic varieties of Ozark Milkvetch are recognized. A. distortus var. engelmannii can be found in Texas, Louisiana, Mississippi, and Arkansas, overlapping with A. distortus var. distortus, which spans the species' entire range. A population genetic analysis will show if these varieties are genetically distinct and evolutionarily separate groups and will determine if the disjunct mid-Atlantic metapopulation warrants separate taxonomic recognition. Additionally, understanding the genetic diversity within and among populations of Ozark Milkvetch will be invaluable for guiding regional and ongoing conservation efforts, including in Illinois, where the species is classified as an S1 (Critically Imperiled) plant. Our proposal asks for support in surveying IL populations and analyzing their population genetic data within our ongoing continental phylogeographic analysis of the species. *(Note: this INPS grant focuses on Illinois populations.)*

**Mac Johnson, MS Student in Soil Science, University of Illinois**

Linking Belowground Mutualisms to Aboveground Growth Trends Associated with the Invasive Legume Lespedeza cuneata and Native Species in a Restored Prairie Habitat

Invasive plants pose a risk to the biodiversity, structure, and function of native ecosystems because they dominate the landscape and displace native plants. An invasive species of concern to North American prairies is the legume Lespedeza cuneata which spreads quickly, outcompeting native grasses and forbs for light. Legumes associate with nitrogen-fixing bacteria known as rhizobia in root nodules, a mutualistic relationship that enables plants to grow in relatively nutrient-poor conditions. Arbuscular mycorrhizal fungi (AMF), another group of soil microbes, aid in nutrient uptake and stress tolerance for most terrestrial plants. Despite their prominent role in mediating plant performance, responsiveness to belowground mutualists is highly variable among plants and has been implicated as a mechanism of invasion. To effectively control the spread of invasive plants and preserve the habitats of endemic species, it is important to understand the environmental conditions and biotic interactions that facilitate invasions. The main goals of this project are therefore 1) to characterize the rhizobial communities from native legumes and Lespedeza cuneata nodules, and 2) to compare AMF responsiveness between L. cuneata and three native prairie species: L. virginica, Andropogon gerardii, and Chamaecrista fasciculata. The Pollinator Habitat Restoration Experiment (PHRE) plots were seeded in 2018 in Urbana, IL; however, this site has experienced a severe and persistent L. cuneata invasion. As a restored prairie habitat harboring both native species and L. cuneata, the PHRE plots present the opportunity to study invasion dynamics and belowground mutualistic interactions in a recently invaded prairie.

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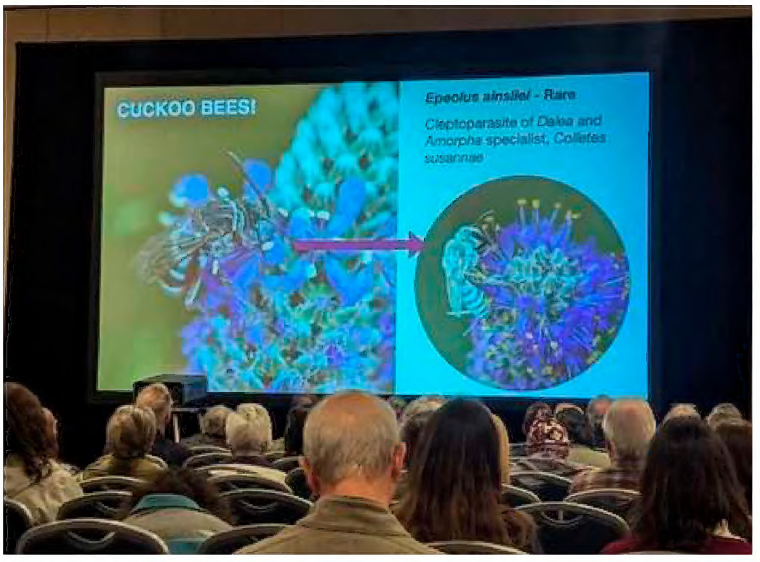
## Wild Things Conference Recap

By Ingrid Felsl and Brian Charles

As usual, the Wild Things conference was a veritable smorgasbord of incredible presentations. It is impossible to see everything you want to, but you cannot go wrong. There were excellent plant-based talks on topics like propagating hemiparasitic plants and the plant diversity of Langham Island in Kankakee County. The event, hosted by the Friends of Illinois Nature Preserves, was heavily attended this year, with over 2,000 enthusiastic conservationists buzzing about. Our minds were certainly pollinated with shared stories, outstanding ecological themed artwork at the vendor booths, and heartwarming conservations with friends old and new.

Marla Garrison started the day off by getting us excited about Odonates (dragonflies and damselflies) in the opening plenary speech. Marla dazzled us with facts about their eyes (they have 15 different receptors compared to our measly three!) and had us laughing like middle schoolers at Odonate genitalia (or, as Marla put it, their Swiss Army knives). Afterwards, folks scattered to over 140 talks throughout the day.




Heather Holm gave an exceptional presentation on specialist native bees. We have a stunning diversity of native bees in Illinois, with specialists on Willows (*Salix* spp.) and Purple Prairie Clover (*Dalea purpurea*). In the photo to the right, she was talking about bees that are cleptoparasites (bees that lay their eggs in the nest of other bees) of the *Dalea* specialist for an even further degree of specialization!

Negin Almassi of the Forest Preserves of Cook County relayed preliminary findings of acoustic recordings of Brood XIII, the periodic cicadas that emerged in northern Illinois in 2024. Community scientists uploaded audio recordings throughout the summer in the Chicago Wilderness Region as part of the Singing Insects Monitoring Program iNaturalist project. Early analysis revealed that airplane noise and wind affected cicada singing, and that while Brood XIII is known for consisting of three species of periodical cicada, one species, *Magicicada septendecula*, was not observed in the Chicago region last year. Rather, its closest observation was along the Vermilion River. As with any great presenter, Negin left us with more questions about cicadas than we had upon entering. Joey Santore, who hosts the popular Crime Pays but Botany Doesn't podcast, gave the closing plenary to a packed house. Known for his signature Chicago accent, he opened with photos of his dog eating Italian beef. He then regaled the audience with fantastic stories, such as one about a run-in with the cartel while searching for a rare plant in Mexico. He closed with a hopeful message about the inertia of the native plant movement and how finally many lawns are being retired in favor of native plant gardens.

Ultimately, the beauty in the conference was the constant reminder that people care. While the news makes it sound as though we are floundering around aimlessly and disconnected, Wild Things reminds us that our local conservation community is powerful. We uplift one another by sharing wildlife puns, laughing at dragonfly copulation, engaging in poster sessions, and learning from one another during session presentations. Us attendees left nourished in a way we did not know we needed.

## Chapter News

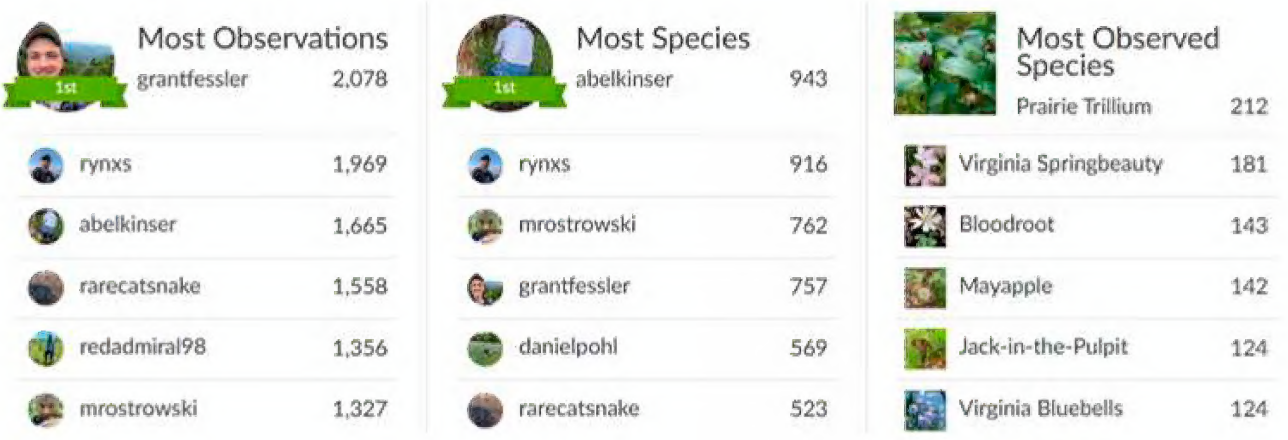
For information about each chapter, visit our website at illinoisplants.org/chapter-locations

# Illinois Botanist's Big Year 2024 Report

By Brian Charles and Daniel Pohl

Happy spring everyone! The Illinois Botanist's Big Year (BBY) is a competition on iNaturalist coordinated by botanically inclined Illinoisans to see who can find the most plants in Illinois in any given year. This was the 9th year of the competition, which was founded by cassi saari in 2016. To learn more about the competition, learn tips for using iNaturalist, and to join the project for 2025, please check out the INPS website: illinoisplants.org/illinois-botanists-big-year/. Want to get involved? Contact Brian Charles at brianmc4@illinois.edu.

The winner this year for most observations is Grant Fessler at a whopping 2,078 observations! Abel Kinser once again observed the most species with 943 in total. The most observed species this year was Prairie Trillium (*Trillium recurvatum*), which was observed 212 times and dethroned Spring Beauty (*Claytonia virginica*), the previous champion. It was time to say goodbye to old beauty standards!




Here are the top 10 most observations and species for 2024. Also, a big thank you to our most prolific identifiers! Ryan Sorrells led the way with 5,678 observations.

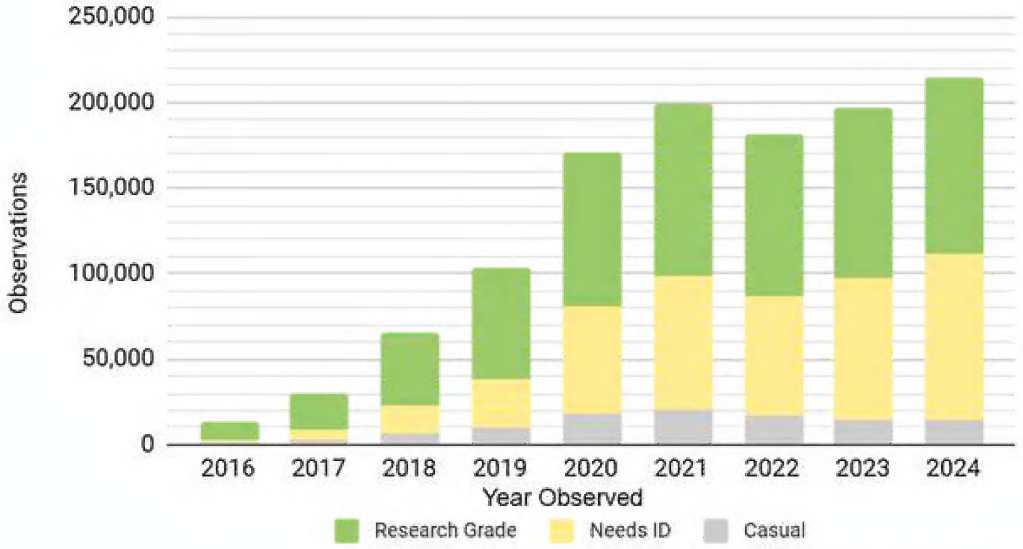
## Top 10 identifiers in 2024:

1. rynxs - 5,678
2. abelkinser - 3,953
3. grantfessler - 1,697
4. bgrimmer - 1,588
5. mrostrowski - 769
6. prairiebeeman - 721
7. rarecatsnake - 505
8. hazelnutman - 420
9. wildnernessbarbie - 417
10. badgerbirder6 - 370

With 215,463 observations, more plants were observed in Illinois on iNaturalist in 2024 than in any year prior. We now have over 1.2 million plant observations on iNaturalist in the state!

The Pink Lady's Slipper Orchid (*Cypripedium acaule*) observed by Grant Fessler was the most favorited post of the year, and this was also the first time it was documented in Illinois on iNaturalist. This species had not been seen in Illinois since 1999 and is the result of historical species searches coordinated by the Illinois Natural History Survey and Plants of Concern. Fantastic find, Grant! inaturalist.org/observations/217771262

## Illinois Plant Observations on iNaturalist (2016–2024)



Pink Lady's Slipper Orchid (*Cypripedium acaule*) observed by Grant Fessler.
inaturalist.org/observations/217771262

Another spectacular highlight comes from cassi saari, who photographed the state-threatened American Marram Grass (*Calamagrostis breviligulata*) during the aurora.
inaturalist.org/observations/246786528

# A Sedge with a Nutty Name: Searching for *Scleria pauciflora*, Few-flowered Nut Rush, in Illinois

By Chris Benda

The Nut Rushes in the *Scleria* genus have always been a favorite group of plants of mine. The hard, white fruits (called achenes) are neat looking structures and are diagnostic for identification to species. Taxonomically, these plants are sedges in the Cyperaceae and are not true rushes. That's a problem with common names; they are often misleading and many plants with "rush" in the common name are not actually in the Rush family (Juncaceae)!

Other sources use names like Carolina Whipgrass, and although this is a sedge and not a grass, to the untrained eye, it does look like a clump of grass. The achenes are nestled within leafy bracts at the base of each inflorescence and the leafy bracts can be useful for identifying a plant as belonging to the *Scleria* genus, even after the fruits have fallen off. So, in a sense, these are inconspicuous plants to search for, but for a botanist, and especially after a search image is attained, the leafy bracts and white fruits stand out well among the dense vegetation.

In Illinois, there are five species in the genus *Scleria*. In 2023, I received a Survey Grant from the Illinois Native Plant Society to conduct a comprehensive survey of *Scleria pauciflora* in Illinois. The common name for this species is Few-flowered Nut Rush and it occurs statewide, although predominantly in southern Illinois, and particularly in Pope County. I spent two years tracking down all previously documented occurrences of this species in Illinois, along with the help of many professionals and volunteers, and found many new occurrences as well.

The primary source for spatial data regarding threatened and endangered species in Illinois is the Natural Heritage Database maintained by the Illinois Department of Natural Resources' Natural Heritage Division. *Scleria pauciflora* is currently listed as endangered in Illinois, so I was able request data on occurrences. The database included 19 occurrences in 11 counties, but many of the occurrences had not been observed in over 20 years, or in a few cases, a lot longer.

I should also mention there are two varieties for this species: *Scleria pauciflora* var. *pauciflora* and *Scleria pauciflora* var. *caroliniana*. The two varieties are differentiated by variety *pauciflora* having culms and leaves that are glabrous to sparsely hirtellous and variety *caroliniana* having culms and leaves that are densely pilose (Mohlenbrock 2001). While both species are documented as occurring in Illinois (Mohlenbrock 2014), all individuals I observed during the study were variety *pauciflora*. This is consistent with the conclusions by Ebinger and Tucker (2011) who indicate, "we have not been able to verify the existence of variety *caroliniana* for Illinois" and Yatskievych (2013) who notes that the variety *caroliniana* is "unworthy of formal taxonomic recognition."

Monitoring reports were created and submitted to the Plants of Concern program, which is a rare plant monitoring program managed by the Negaunee Institute at the Chicago Botanic Garden. All data is also shared with the Natural Heritage Database managers at the end of the project. In total, 18 occurrences representing 24 subpopulations were determined as extant in the following 9 counties: Hardin, Kankakee, Jackson, Johnson, Pope, Randolph, Saline, Union, and Will. Of these, 7 are new, previously undocumented subpopulations discovered during this project. I failed to find plants at 5 sites, 4 of which no longer have suitable habitat. The only occurrence for Massac County is thought to be a duplicate and was collected from Pope County (John Schwegman pers comm.).

While time-consuming and challenging in some respects, this project was really fun. What I liked most was navigating to glades and forest openings in fairly remote natural areas to find *Scleria pauciflora* populations. It was also incredibly helpful to have multiple sets of eyes involved in each survey. I'd like to thank the many friends, colleagues, and volunteers who helped me, as there are too many to list here. I'd also like to thank the Illinois Native Plant Society for funding this project.

Literature Cited

Ebinger, J.E., & Tucker, G.C. 2011. *A review of the genus* Scleria *(Cyperaceae) in Illinois*. Transactions of the Illinois State Academy of Science, 104(3/4), 109-118.

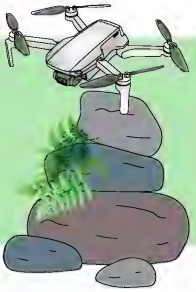
Mohlenbrock, R.H. 2001. *The Illustrated Flora of Illinois: Sedges* Cyperus *to* Scleria 2nd ed. Southern Illinois University Press, Carbondale.

Mohlenbrock, R.H. 2014. *Vascular Flora of Illinois* 4th ed. Southern Illinois University Press, Carbondale.

Yatskievych, G. 2013. *Steyermark's Flora of Missouri, Vol.3*. Missouri Department of Conservation, Jefferson City, MO.

# Drones and Ferns: High-Tech Conservation in Illinois

By Noah Farris



High above the sandstone cliffs of southern Illinois, researchers are using cutting-edge drone technology to track one of the state's rarest plants: Bradley's Spleenwort (*Asplenium bradleyi*). This small, tenacious fern clings to rocky outcrops, surviving in conditions where few other plants dare to grow. Listed as endangered in Illinois, its populations are scattered, with some sites not surveyed in over a decade. Now, thanks to the combined efforts of expert surveyor Chris Benda, SIU student Noah Farris, and some high-flying technology, scientists are getting a clearer picture of its status—and the future of this remarkable species.

Bradley's Spleenwort is no ordinary fern. It thrives in dry, acidic rock crevices and reproduces through wind-dispersed spores rather than seeds. Unlike more common plants, it can't simply be relocated to safer habitats—it has evolved to survive in some of the harshest environments in the state. This specialization, while fascinating, makes it vulnerable to habitat destruction, climate change, and even accidental damage from hikers and rock climbers.

To update records of this elusive fern, Farris and Benda applied for and were awarded an Illinois Native Plant Society Survey Grant, enabling them to embark on a year-long field study, trekking through rugged terrain to document known populations. But human efforts alone weren't enough. Enter the drones—small, maneuverable flying machines equipped with high-resolution cameras. While traditional survey methods required climbing treacherous rock faces, drones allowed Farris to scan otherwise inaccessible cliff sides, revealing new subpopulations and confirming the survival of others using Benda's keen taxonomic insight. This technology not only improved efficiency but also reduced the risk of disturbing the fragile plants.

The results of the study were both encouraging and concerning. While some populations were confirmed to be thriving, others had vanished. Benda and Farris surveyed eight previously known sites and recorded extant populations at six of them, in six different counties, namely Hardin, Jackson, Pope, Randolph, Saline and Union. The sites included two Illinois Nature Preserves, two Wilderness Areas, two Research Natural Areas, an Ecological Area and one non-protected site in the Shawnee National Forest, highlighting the significance of such areas to vulnerable wildlife. In total, the survey recorded 194 clumps of Bradley's Spleenwort across six Illinois counties. The researchers concluded that the species remains endangered, reinforcing the need for continued protection and monitoring.

The use of drones in botanical research is still in its early stages, but this project highlights its potential. As artificial intelligence and drone technology continue to advance, they could revolutionize how conservationists' study rare and endangered species. For Bradley's Spleenwort, the fusion of old-school botany and high-tech innovation may be the key to securing its place on Illinois' cliffs for generations to come. The authors would like to acknowledge and thank the Illinois Native Plant Society for their willingness to fund cutting edge research and their gracious support and patience while technical hurdles were overcome. Their intrepid support and enthusiasm for the project is exemplary of their continued dedication and leadership in the region.

# Phenology in Focus: Training Machine Learning Models Using iNaturalist

By Nancy Smith

In January, iNaturalist hosted a webinar called “Phenology in Focus: Exploring Plant Cycles with iNaturalist” to call citizen scientists to action. iNaturalist wants users to annotate whether or not plants have live, dead or turning leaves and whether or not flowers, fruits or seeds are present at the point in time each observation is recorded. Adding phenological annotations to iNaturalist observations can deepen understanding of the impacts of climate change on our world, says Erin Grady, a botany master’s student at the University of Florida. She is working with Phenobase, a collaboration between iNaturalist, the National Phenology Network, Budburst, and many phenology recording programs around the world. As Grady explains it, “We train machine learning models to be able to look at images and classify the phenology stage in those images. We are actually using your phenology annotations to train our models.”

By using iNaturalist, scientists have access to phenological data from around the world. The problem is that very little of it is annotated. iNaturalist and scientists want to recruit help from citizen scientists to annotate more entries. As Dr. Carrieann Selzer, Head of Engagement at iNaturalist explains, “iNaturalist has 94 million observations of flowering plants and only about 10% of those have any annotation about flowers or fruits. For vascular plants we've got almost 100 million observations and only a tiny fraction of those have annotations about leaves.” I heeded the call! After attending the iNaturalist webinar, I spent some hours tagging Illinois entries for *Rubus*, *Acer* and *Carya* for phenological data. Before long, I focused my efforts on annotating the Illinois Botanist Big Year observations.

It feels productive to help provide data that can be used to train machine learning models to track and predict the impacts of climate change on plants. I will never be a Big-Year botanist, but maybe I can help organize other citizen scientists to annotate way more than 10% of entries reported in Illinois! Annotating entries could be of great benefit to science and to citizen scientists seeking to learn more about plants as they go through entries month-by-month and species-by-species.

# Other News, Articles, Web Links, & Videos

**Check out the 2025 botany workshops at the University of Wisconsin-Milwaukee Field Station:**
uwm.edu/field-station/workshops/

**Midwest Biological Survey is hosting a 2-day sedge workshop** in Columbia, MO. Learn more and check out other workshops!
tinyurl.com/MBSSedgeWorkshop2025

A **map of Illinois Big Tree Champions** is available from the Illinois Extension:
go.illinois.edu/championtrees

Hot off the press! Read an open-access research article in the journal Conservation Biology, **"Setting goals for pollinator gardens," co-authored by scientists at the Chicago Botanic Garden:**
https://conbio.onlinelibrary.wiley.com/doi/10.1111/cobi.70009

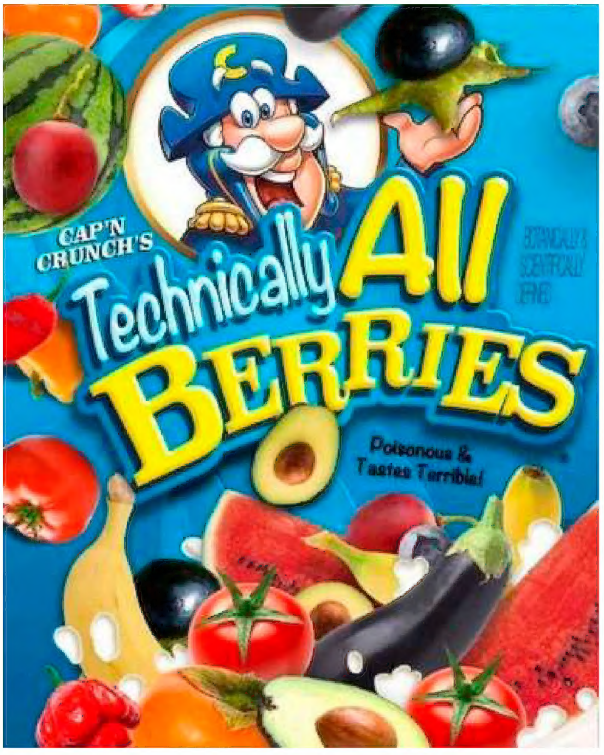
Check out the **iNaturalist Phenobase project:** "Phenology in Focus: Exploring Plant Cycles with iNaturalist"
inaturalist.org/blog/105349-phenology-in-focus-exploring-plant-cycles-with-inaturalist#

The new **Conservation Research Institute** website is live! crimidwest.org

View the recording of **Dr. Widrlechner's Rubus Ramblings presentation**, hosted by the Quad Cities Chapter:
tinyurl.com/RubusRamblingsRecording

Register for the **Illinois Invasive Species Symposium** on May 28, 2025:
registration.extension.illinois.edu/start/2025-invasive-species-symposium

# Botany Humor



**ILLINOIS NATIVE PLANT SOCIETY**
P.O. Box 9245
Springfield, IL 62791

illinoisplants@gmail.com
www.illinoisplants.org

## The Harbinger Spring 2025

You can renew/join by filling out the form below or online at illinoisplants.org/online-membership-form/.
Please become a member and support this local non-profit organization dedicated to the preservation, conservation, and study of the native plants and vegetation of Illinois!

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☐ New member ☐ Address Change Only
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INPS, Membership, P.O. Box 9245, Springfield, IL 62791

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- ☐ Individual.....$25$^{00}$
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- ☐ Patron.....$100$^{00}$
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- ☐ *Erigenia* (Life).....$5,000$^{00}$

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**Erigenia**, our scientific journal, is now available digitally as well as in print. Please indicate your preference for receiving the journal.
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**Chapter Affiliation**

- ☐ Central (Springfield)
- ☐ Forest Glen (Westville)
- ☐ Grand Prairie (Bloomington)
- ☐ Kankakee Torrent
- ☐ Northeast (Chicago)
- ☐ Quad Cities (Rock Island)
- ☐ Southern (Carbondale)
- ☐ Other/Uncertain

**I would like to help with...**

- ☐ Leadership & Organization
  Serving on Board at State or Chapter Level
- ☐ Leading Field Trips & Tours
- ☐ Organizing Workshops &/or Seminars
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- ☐ Public Speaking
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- ☐ My area of expertise:_____